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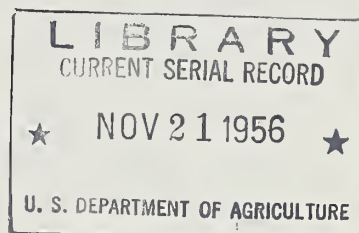
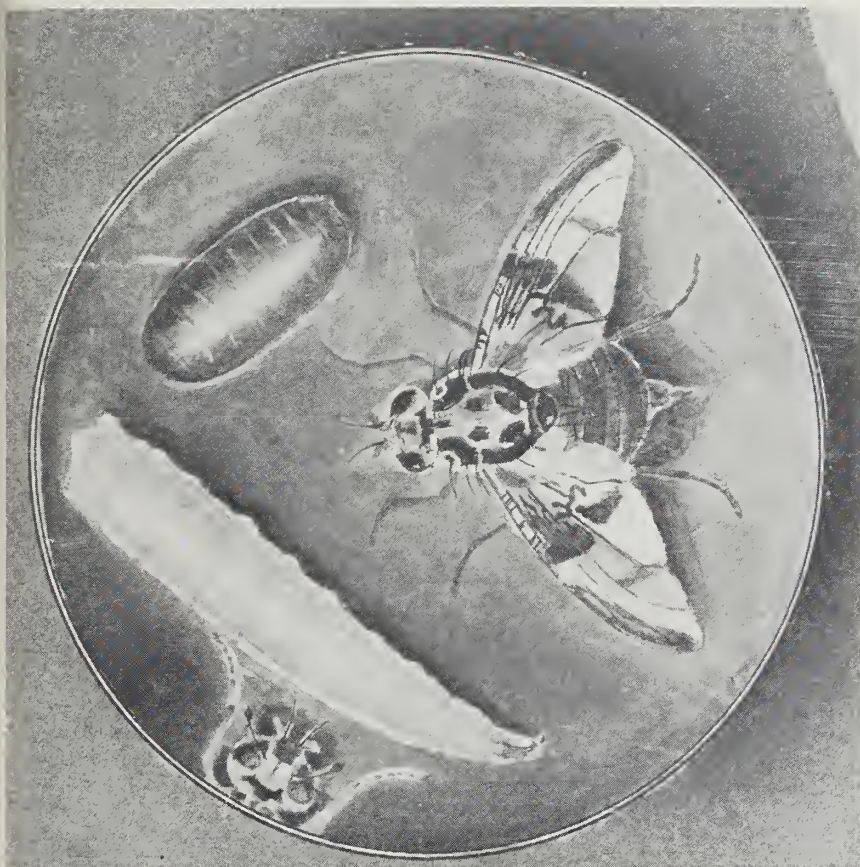


# U.S. DEPARTMENT OF AGRICULTURE

## Office of Information



Picture Story No. 100 For Release November 15, 1956



DN-900--The Mediterranean fruit fly is slightly smaller than a house fly. The female pierces the skin of host fruits to lay her eggs. She may lay as many as 600 eggs in her lifetime. Larvae (upper left) hatch from the eggs and feed on the fruit for about 10 days. The larvae then enter the soil and form brown, shiny case-like pupae. After 8 to 14 days new flies emerge from the pupae in the soil.

# Conquest of the Medfly

Victory over the Mediterranean fruit fly in Florida now appears assured. U. S. Department of Agriculture experts agree that this destructive pest can be eradicated. However, continued vigilance and effort will be required for six months more...maybe longer...before present eradication activities can be tapered off appreciably.

The round-the-clock control and eradication program by USDA and the Florida State Plant Board, in effect since April, has drastically reduced fly populations in heavily infested areas and slowed down the spread of the pest to new areas. But the Medfly is tough and tenacious. It remains a threat to the South's fruit and vegetable crops until that "last fly" is pinned down.

This insect attacks a hundred or more fruit, vegetable, and nursery plants found in our southern States the year round. Citrus fruits, except lemons and sour limes, are among the preferred hosts. Like other flies, the Medfly is a prolific breeder. In south Florida, it can develop a dozen or more generations a year. Each female can lay as many as 600 eggs.



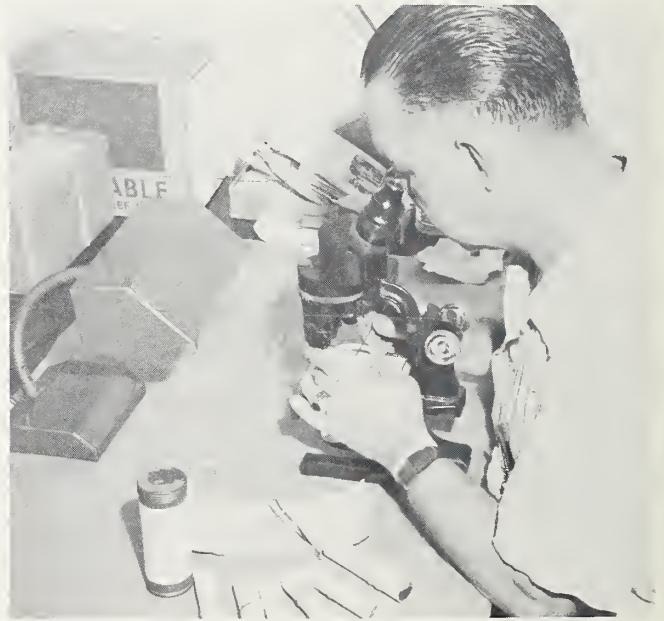
N-18508--Plastic traps are being used to locate Medfly-infested areas and to check on control measures. Entomologist L. F. Steiner, one of USDA's top authorities on the Medfly, hangs one of the streamlined traps he devised. Steiner and his associates in Honolulu developed the bait spray now proving successful against the Medfly in Florida.



N-18509--Traps are checked periodically--1 field man maintains, moves, and checks about 250 units a week. Over 40,000 traps are to be in use in Florida. Cotton wick is treated with insecticide plus oil-of-angelica seed, one of the best lures discovered by USDA researchers. Trapped specimens go to the Medfly headquarters for identification.



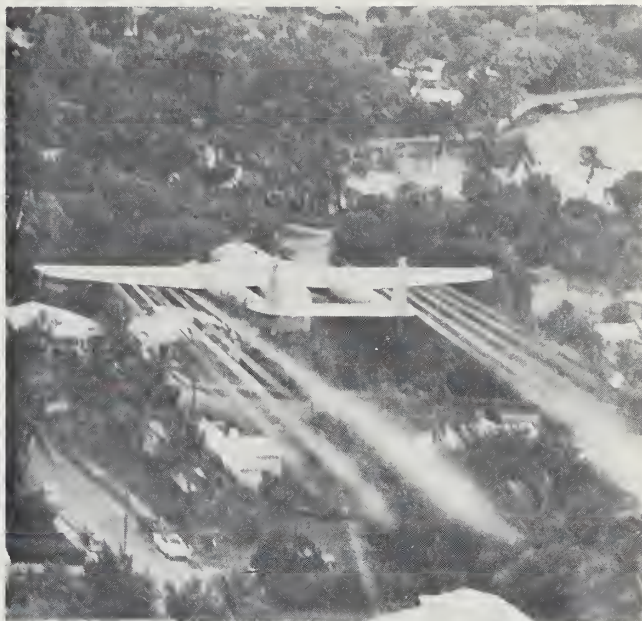
N-18505--Intensive fruit-cutting for detection of larvae, along with trapping of adult flies, aids in locating infestations and checking on effectiveness of treatments. Larvae specimens in fruit picked by ground scouts are also sent to Medfly headquarters for identification. Here a laboratory technician lifts larvae from an infested mango.



N-18503--It takes specialized training to distinguish between larvae of Medfly and similar pests. Entomologists at eradication headquarters in Florida examine flies as well as larvae specimens under a microscope for identification. Results of examinations are relayed to field inspectors so they can inform owners of the fly finds on their property.



N-18504--When a fly or larva is positively identified, the area in which it is found goes under quarantine regulation and spraying begins. Here, a reported infestation is discussed and located on the map by USDA entomologists R. H. Foote (right) and F. J. Bartlett. Medfly infestations have been found on about 2,000 properties in Florida.



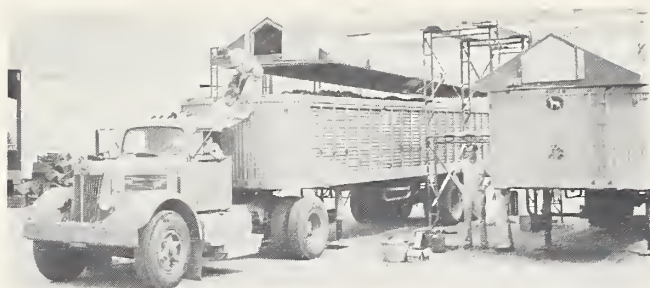
N-18517--Plane sprays baited malathion over an infested area. Nearly 40 aircraft joined the fight against the Medfly. Applied as a water suspension, the insecticide-bait spray sticks to foliage of trees and shrubs. Medflies, attracted by the bait, feed on it and dose themselves with the poison. Treatment is harmless to man and livestock.



N-18491--Roadside spraying supplements plane spraying in the campaign against the Medfly in southern Florida. These turbine sprayers, mounted on small cars, throw an intense spray of the malathion and protein-hydrolysate mixture some 60 feet on each side of all highways leading in and out of the infested area. The spray reaches host plants as well as fruits, vegetables, and other plant material thrown from passing cars.



N-18596--In heavily infested areas, soil within a radius of several hundred yards around known host trees has been hand-treated with a powerful granular insecticide. It is intended to kill larvae going into the ground and flies as they emerge after pupation. The insecticides used have a residual toxicity that makes frequent application unnecessary.



N-18489--Fruit is fumigated with ethylene dibromide to make it safe for shipment from infested areas. Fumigation unit pictured is fastened to top of open-body trailer truck. Special fumigation chambers are ready for the current citrus crop. Many of the larger citrus packers are converting "de-greening" rooms to fumigation chambers.

Tracing the course of the Medfly's invasion of Florida points up its menace. The fly sneaked into the State--probably in baggage arriving at a Miami-area port or airfield. Before it was discovered in grapefruit growing in a Miami backyard in April, it had become generally established in a thousand-square-mile strip along the southeast Florida coast. Ft. Myers, Tampa, and St. Petersburg were also heavily infested. From these tourist centers the fly was carried unwittingly by travelers and tradesmen to most of the important commercial fruit and vegetable producing areas of the State.

Powerful new insecticides, streamlined traps, effective lures, and safe fumigants...developed through years of foresighted research...were available and promptly put to use in the Florida emergency.

A bait spray that both attracts and kills flies is the key to eradication. Malathion, an organic phosphate that is deadly to the fruit fly but harmless to warmblooded animals at rates used, is mixed in water with protein hydrolysate, an attractive Medfly food. This bait spray makes complete coverage of all foliage unnecessary, since it draws flies to treated areas from nearby untreated strips.

Applications of the bait spray are timed to the life cycle of the fly. Medflies start breeding 6 to 10 days after emerging from the pupa stage. Since the malathion kills for at least a week after application, unless it's washed off by rain, spraying on a 10-day schedule should prevent practically all adult Medflies in treated areas from reproducing. But eggs and larvae inside



N-18472--Round-the-clock roadblocks are used on roads leading from quarantined areas. Vehicles are searched for host fruits and vegetables that might spread infestation. Much contraband has been found despite warnings by newspapers, radio, TV, other media. Reduction in fly population has made it possible recently to discontinue most roadblocks.

fruits and pupae below ground are untouched by the spray, so the schedule must extend to cover the entire life cycle. This is theoretically accomplished with 5 or 6 scheduled sprays over a period of 40 to 50 days--generally enough in areas of light infestation.

Many obstacles can delay complete eradication, especially in heavily infested areas. Sudden showers may wash off spray residue soon after application. Bad weather, mechanical failure of spray planes, and the difficulty of laying an accurate spray swath at high speeds, low altitudes, and in the face of variable winds, all give Medflies a chance of survival. Researchers found that hardskinned, overripe mummified fruit hanging on trees could trap larvae inside and extend the fly's life cycle by several weeks. Fly eggs or larvae in fruit held in home refrigerators may resume normal development days or weeks later, when the fruit is removed from storage.

In Miami, the infestation was so heavy before the first spray that every 100 traps were catching an average of 300 flies a day. Despite the fact that 6 sprays knocked the catch per 100 traps down to 0.3 fly a day, Medfly fighters anticipate considerable "mopping up" in Miami, as well as in other limited areas.

Intensive trapping surveys will continue as a check on the effectiveness of treatments and to spot any new infestation. Plans call for 40,000 traps to be hung throughout Florida and to be manned until no trace of a Medfly is found. Only then will trapping be reduced to a routine type of survey that will be on the lookout for any new arrivals of the Medfly and related species.

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*Magazines and newspapers may obtain glossy prints of any of these photographs from the Photography Division, Office of Information, U. S. Department of Agriculture, Washington 25, D. C. Others may purchase prints, at 75¢ each, from the same address.*